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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,607	10/28/2003	Daniel Yap	B-4804 620261-8	6869

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EXAMINER

RATCLIFFE, LUKE D

ART UNIT	PAPER NUMBER
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3662

DATE MAILED: 08/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/696,607

Applicant(s)

YAP, DANIEL

Examiner

Luke D. Ratcliffe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-52 is/are allowed.
- 6) ☒ Claim(s) 1-15, 17, and 53-56 is/are rejected.
- 7) ☒ Claim(s) 16, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 8, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Collins (6388815).

Referring to claim 1 Collins shows a merged dual flipped White Cell including a dual white cell having a first and second cell regions (figure 3), an optical deflector array (figure 1 Ref 28), a plurality of guided-wave optical delay lines (column 2 lines 11-30), and a plurality of reference mirrors (figure 3).

Referring to claim 7 Collins also shows mirrors that reflect light back to the optical deflector array (figure 3).

Referring to claim 8 Collins also shows mirrors that provide a reference time delay (column 5 lines 7-35).

Referring to claim 9 Collins also shows four convex mirrors (figure 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 6, 10, 11, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins (6388815) in view of Anderson (6266176).

Referring to claim 2 Anderson shows the plurality of delay lines has a plurality of port (column 15 and 16). It would have been obvious to modify Collins to include the delay lines with ports as taught by Anderson because this allows the White cell to produce the time delays necessary to steer the beamformer.

Referring to claim 6 Collins as modified shows that the first and second image plane are coplanar (figure 1). It would have been obvious to include coplanar first and second image planes because this is a common alignment method used.

Referring to claim 10 and 11 it would have been obvious to tilt the input and output portions of the optical delay lines that include waveguide sections with respect to the first and second image planes because this increases the input and output communication with the image planes.

Referring to claim 12 it is obvious that the plurality of optical delay lines each produce a distinct time delay because this allows the user to select a delay by adding delays of the separate delay lines.

Referring to claim 13 Collins as modified shows a plurality of distinct time delays that are associated with steering the beam of an antenna array (columns 1 and 2).

Claims 3, 4, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins (6388815) in view of Anderson (6266176) as applied in claim 2 above, and in further view of Ducellier (2002/0061157).

Referring to claims 2, 4, and 5 Ducellier shows an array of optical path switching devices that include an array of MEM devices (column 8 and 9). It would have been obvious to further modify Collins to include the optical deflector array as taught by Ducellier because this allows either the first image plane or the second image plane of the White cell to be selected. It would be obvious to also control said MEM devices with an electrical voltage or current because this is a common method for controlling MEM devices.

Claims 14, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collins (6388815) in view of Stephens (2002/0180637).

Referring to claims 14 and 15 Stephens shows optical lines implemented by waveguides in a substrate and the delay lines comprise optical fibers (column 2 lines 35-60). It would have been obvious to include waveguides and delay lines that comprise optical fibers because these are commonly used in optical communication systems.

Referring to claim 17 if the input and output ports are disposed in the delay lines and the delay lines are disposed in the substrate then it would be obvious that the input output ports would then be disposed in the substrate as well.

Claims 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tulchinsky (2002/0181874) in view of Collins (6388815).

Referring to claim 53 Tulchinsky shows a method of forming and/or detecting a radio frequency beam at an antenna array using optical delay lines (columns 1 and 2), and Collins shows the dual flipped White cell that produces the time delays for

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controlling the frequency beam. It would have been obvious to modify Tulchinsky to include the dual flipped White cell taught by Collins to form and/or detect the RF beam at an antenna because the optical delay can be provided easily and simply through the White cell technology discussed in Collins.

Referring to claim 54 Tulchinsky as modified shows a method of modulating the optical signal (column 2). It would have been obvious to use an optical modulator to modulate the optical signal.

Referring to claim 55 Tulchinsky as modified shows the photodetector (columns 3 and 4 and it would have been obvious to couple the photodetector to the antenna array because this is a connection means for proper transfer of data to the photodetector.

Referring to claim 56 it would have been obvious using the White cell discussed in Collins in the system discussed in Tulchinsky to have a method that include operating the deflector array to select different delay lines to generate different time delayed RF modulated light waves because the different time delayed RF modulated light waves steer the signal.

Allowable Subject Matter

Claims 20-52 are allowed.

Claims 16, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

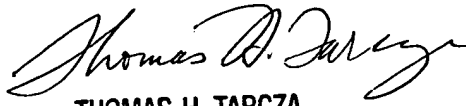
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Collins (6525889) shows a White cell as in claim 20 with a curved mirror that is changed to a flat mirror but does not use both a curved mirror and a flat mirror as described in claim 20 simultaneously.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke D. Ratcliffe whose telephone number is 571-272-3110. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LDR


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